

**GIANT RAGWEED CONTROL IN ROUNDUP READY® SUGARBEET  
- NORTHWEST OF HUTCHINSON, MN - 2009**

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'Betaseed 95RR03' sugarbeet was seeded April 23, 2009 in 22 inch rows in a grower cooperator field having glyphosate-resistant giant ragweed NW of Hutchinson, MN. Sugarbeet seed was treated with Tachigaren at 45 grams dry product per 100,000 seeds. Herbicide treatment information is provided in the table below. All treatments were applied in 17 gpa water at 40 psi through 8002 nozzles with a bicycle sprayer to the center four rows of six row plots 40 feet in length. Glyphosate and/or clopyralid were applied according to the treatments in the data table below. Ammonium sulfate as AmStik from West Central was included in all treatments at 2.5 qt/A. Giant ragweed was evaluated 21 days after each application and at harvest. Only selected data is presented in the table below. Visual evaluations are an estimate of percent control in the treated plot area compared to the adjacent untreated strips and based upon a scale of 0 (no control) to 100% (complete control). Sugarbeet was harvested August 31 from one center row of each plot. Experiment designed as a randomized complete block having four replications.

Table. Application information.

<b>Application Code</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
Date of Application	May 18	June 12	July 1	June 2	June 23	July 13	June 12	July 1	July 22
Time of Day	4:30 pm	10:00 am	5:30 pm	2:30 pm	11:30 am	4:45 pm	10:00 am	5:30 pm	1:15 pm
Air Temperature (°F)	86	66	74	69	88	76	66	74	78
Relative Humidity (%)	20	37	50	20	45	38	37	50	36
Soil Temp. (°F at 6")	60	50	74	60	72	70	50	74	76
Wind Velocity (mph)	3	2	4	8	3	2	2	4	2
Cloud Cover (%)	20	90	90	5	90	70	90	90	90
Sugarbeet (stage - range)	Cot.-V2	V4-V8.5	V8.5-V17.9	V4-V7.2	V4-V14.5	V5-V24	V4-V8.5	V8.5-V17.9	V6-V16.5
Giant Ragweed (stage/height -range)	Cot.-3N/ 0.25-2"	-	-	1N-5N/ 1-7.5"	-	-	1N-6N/ 1-13.5"	-	-
Giant Ragweed (avg. density)	8.5/ft <sup>2</sup>	-	-	10.8/ft <sup>2</sup>	-	-	6/ft <sup>2</sup>	-	-

**Summary:** No appreciable injury was observed with any treatments. Glyphosate applied once and multiple times inadequately controlled giant ragweed, although multiple glyphosate applications controlled more giant ragweed and increased sugarbeet yield compared to a single application. The inadequate control is a result of the presence of glyphosate-resistant biotypes in the population. Sugarbeet yield declined as giant ragweed height increased indicating the competitive ability of giant ragweed.

Increasing the rate of clopyralid improved giant ragweed control at nearly all evaluations and timings. Clopyralid (totaling 0.28 lb ae/A) plus glyphosate (0.75 lb ae/A at each application) controlled the most giant ragweed at harvest for each timing, except clopyralid (totaling 0.188 lb/A) plus glyphosate applied three times starting at 1 inch giant ragweed.

Clopyralid plus glyphosate applied once or multiple times to 6 inch giant ragweed could not improve sugarbeet yield and extractable sucrose. Clopyralid (0.94 lb/A) plus glyphosate (0.75 lb/A) maximized sugarbeet yield and extractable sucrose when applied two or three times to 1 or 3 inch giant ragweed, except three applications to 1 inch giant ragweed. Clopyralid plus glyphosate applied multiple times to 1 and 3 inch giant ragweed improved sugarbeet yield and usually extractable sucrose compared to a single application, except clopyralid (0.188 lb/A) plus glyphosate (0.75 lb/A) applied once to 3 inch giant ragweed.

**Table. Giant ragweed control in Roundup Ready® sugarbeet, NW Hutchinson, MN (Fisher, Stachler, and Luecke).**

Treatment*	Rate (lb ae/A)	Timing	21 DAT	21 DAT 9	Harvest		
			1,4,7			Root	Extr
				Girw		yield	Sucr
			cntl	%	Ton/A	lb/A	
Untreated	-	-	0	0	0	0.0	0
Weed Free Check-1"	-	-	100	100	100	19.5	4910
Glyt-PM	0.75	1	42	7	7	3.7	1132
Clpy + Glyt-PM	0.047 + 0.75	1	43	10	5	0.3	74
Clpy + Glyt-PM	0.094 + 0.75	1	51	19	16	2.7	585
Clpy + Glyt-PM	0.188 + 0.75	1	63	26	23	8.3	1883
Clpy + Glyt-PM	0.047 + 0.75	1,2	45	70	60	19.5	3979
Clpy + Glyt-PM	0.094 + 0.75	1,2	50	94	92	20.9	4429
Clpy + Glyt-PM	0.094 + 0.75	1					
Clpy + Glyt-PM	0.188 + 0.75	2	48	100	99	16.8	4068
Clpy + Glyt-PM	0.047 + 0.75	1,2					
Clpy + Glyt-PM	0.094 + 0.75	3	45	98	99	19.0	4157
Clpy + Glyt-PM	0.094 + 0.75	1,2,3	53	100	100	17.3	4033
Weed-Free Check-3"	-	-	100	100	100	12.7	2787
Glyt-PM	0.75	4	43	20	23	5.7	1333
Clpy + Glyt-PM	0.047 + 0.75	4	52	36	31	0.9	257
Clpy + Glyt-PM	0.094 + 0.75	4	60	51	40	5.3	1142
Clpy + Glyt-PM	0.188 + 0.75	4	68	92	84	18.0	4078
Clpy + Glyt-PM	0.047 + 0.75	4,5	54	83	75	17.2	4004
Clpy + Glyt-PM	0.094 + 0.75	4,5	62	97	96	22.1	5227
Clpy + Glyt-PM	0.094 + 0.75	4					
Clpy + Glyt-PM	0.188 + 0.75	5	60	99	98	15.4	3308
Clpy + Glyt-PM	0.047 + 0.75	4,5					
Clpy + Glyt-PM	0.094 + 0.75	6	52	91	95	16.6	3429
Clpy + Glyt-PM	0.094 + 0.75	4,5,6	62	99	99	22.0	4612
Glyt-PM	0.75	4,5	45	57	55	14.5	2832
Glyt-PM	0.75	4,5,6	43	65	61	10.6	2894
Weed-Free Check-6"	-	-	100	100	100	11.4	2567
Glyt-PM	0.75	7	33	19	19	1.0	223
Clpy + Glyt-PM	0.047 + 0.75	7	45	49	40	5.8	1215
Clpy + Glyt-PM	0.094 + 0.75	7	55	63	53	11.3	1927
Clpy + Glyt-PM	0.188 + 0.75	7	65	61	54	12.8	2620
Clpy + Glyt-PM	0.047 + 0.75	7,8	44	78	75	5.5	1005
Clpy + Glyt-PM	0.094 + 0.75	7,8	54	85	81	5.7	1288
Clpy + Glyt-PM	0.094 + 0.75	7					
Clpy + Glyt-PM	0.188 + 0.75	8	53	92	94	5.3	943
Clpy + Glyt-PM	0.047 + 0.75	7,8					
Clpy + Glyt-PM	0.094 + 0.75	9	47	84	92	5.6	1113
Clpy + Glyt-PM	0.094 + 0.75	7,8,9	57	92	98	7.0	1186
<b>CV (%)</b>			8	7	7	45	46
<b>LSD (0.05)</b>			6	6	7	6.9	1549

\*Glyt-PM = Roundup PowerMAX from Monsanto; Clpy = Stinger from Dow AgroSciences; Amstik = AMS and added to all treatments at 2.5 qt/A; lb ae/A = pound acid equivalent per acre; Girw = giant ragweed; cntl = control; Extr Sucr= Extractable sucrose.